Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended): A method for monitoring the effect of a therapeutic composition on a mammal, comprising:

(i) measuring a first PAK4 on ser-474 [[PAK]] phosphorylation level in a first biopsy obtained from said mammal before administration of a therapeutic composition to said mammal; and

(ii) measuring a second PAK4 on ser-474 [[PAK]] phosphorylation level in a subsequent biopsy obtained from said mammal after administration of the therapeutic composition,

wherein a lower level of PAK4 [[PAK]] phosphorylation in the subsequent biopsy compared to the first biopsy is indicative of an effect of the therapeutic composition on the mammal.

2. (Original): The method of claim 1, wherein the mammal is selected from the group consisting of a human, rat, mouse, pig, cow, goat, monkey, cat, and dog.

3. (Original): The method of claim 1, wherein the mammal is a human.

4. (Original): The method of claim 1, wherein the mammal has a disease.

5. (Original): The method of claim 4, wherein the disease is a cancer.

6. (Currently amended): The method of claim 5, wherein the cancer is colon cancer ~~selected from the group consisting of thyroid cancer, colorectal cancer, pancreatic cancer, breast cancer, parotid cancer, synovial cell cancer, prostate cancer, laryngeal cancer, testicular cancer, hepatocellular cancer, and leiomyosarcoma~~.

7. (Original): The method of claim 1, wherein either or both of the biopsies are suspected of containing cells capable of anchorage-independent cell growth.

8. (Original): The method of claim 1, wherein neither the first nor the second biopsy is suspected of containing cells capable of anchorage-independent cell growth.

9. (Original): The method of claim 1, wherein either biopsy is a tissue biopsy.

10. (Original): The method of claim 9, wherein the tissue is buccal mucosa tissue, skin, hair follicles, tumor tissue, or bone marrow.

11. (Original): The method of claim 1, wherein either biopsy is a biological fluid.

12. (Original): The method of claim 11, wherein a biopsy is selected from synovial fluid, whole fresh blood, peripheral blood mononuclear cells, frozen whole blood, fresh plasma, frozen plasma, urine, and saliva.

13. (Original): The method of claim 1, wherein the therapeutic composition effects a change in one or more of physiological, biochemical, genetic, cellular, or immunological traits of the mammal.

14. (Original): The method of claim 1, wherein the first and subsequent biopsies are taken from a tumor in the mammal.

15. (Currently amended): The method of claim 1, wherein the therapeutic composition directly or indirectly modulates the phosphorylation of PAK4 ~~at least one PAK~~.

16.-17. (Canceled)

18. (Currently amended): The method of claim 1, wherein a first level of phosphorylated PAK4 [[PAK]] in the first biopsy obtained from the mammal is measured at least 1 day before administering the therapeutic composition to said mammal.

19. (Currently amended): The method of claim 1, wherein a first level of phosphorylated PAK4 [[PAK]] in the first biopsy obtained from the mammal is measured at least 5 days before administering the therapeutic composition to said mammal.

20. (Currently amended): The method of claim 1, wherein a first level of phosphorylated PAK4 [[PAK]] in the first biopsy obtained from the mammal is measured at least 14 days before administering the therapeutic composition to said mammal.

21. (Original): The method of claim 1, wherein administration of the therapeutic composition comprises at least one dose of the therapeutic composition.

22. (Original): The method of claim 1, wherein administration of the therapeutic composition comprises a regime of multiple doses of the therapeutic composition.

23. (Original): The method of claim 22, wherein the doses are administered during a period of 4 hours up to about 100 days.

24. (Original): The method of claim 1, wherein the subsequent biopsy is obtained from the mammal after administration of the final dose of said therapeutic composition.

25. (Original): The method of claim 22, wherein multiple biopsies are obtained from the mammal during the regime.

26. (Withdrawn): A method for selecting a mammal amenable to treatment with a PAK activity modulator, comprising measuring the level of phosphorylated PAK in a test biopsy obtained from a candidate mammal, wherein a level of phosphorylated PAK in the test biopsy that is greater than the level of phosphorylated PAK in a control biopsy indicates that the mammal is amenable to treatment with a PAK activity modulator.

27. (Withdrawn): The method of claim 26, wherein the candidate mammal is selected from the group consisting of a human, rat, mouse, pig, cow, goat, monkey, cat, and dog.

28. (Withdrawn): The method of claim 26, wherein the mammal is a human.

29. (Withdrawn): The method of claim 26, wherein the control biopsy is obtained from the same tissue type as the candidate mammal's test biopsy.

30. (Withdrawn): The method of claim 29, wherein the control biopsy is obtained from a healthy mammal of the same species as the candidate mammal.

31. (Withdrawn): The method of claim 29, wherein the tissue type is lymphocyte cells.

32. (Withdrawn): The method of claim 29, wherein the tissue type is brain, heart, lung, breast, skin, intestinal, colon, stomach, bladder.

33. (Withdrawn): The method of claim 26, wherein the mammal comprises a cancer cell.

34. (Withdrawn): A method for selecting a mammal amenable to treatment with a PAK activity modulator, comprising:

(i) determining the ratio of phosphorylated PAK to total PAK4 protein in a test biopsy of a tissue from a candidate mammal; and

(ii) comparing the ratio of (i) to the ratio of phosphorylated PAK to total PAK4 protein in a control biopsy that is obtained from the same tissue type as the candidate mammal's test biopsy,

wherein the candidate mammal is amenable to treatment with a PAK activity modulator if the ratio of phosphorylated PAK to total PAK4 protein in the test biopsy is greater than that of the control biopsy.

35. (Withdrawn): The method of claim 34, wherein the control biopsy is obtained from a healthy mammal of the same species as the candidate mammal.

36. (Withdrawn): The method of claim 34, wherein the candidate mammal comprises a cancer cell.

37. (Withdrawn): The method of claim 34, wherein the candidate mammal has a tumor.

38. (Withdrawn): The method of claim 34, wherein the level of phosphorylated PAK is determined by using a phosphospecific antibody specific to the phosphorylated serine of PAK4; and wherein the level of total PAK4 protein is determined using a PAK4-specific antibody.

39. (Withdrawn): The method of claim 38, wherein the PAK4-specific antibody is raised against the peptide sequence, ATTARGGPGKAGSRGRFAGHSEA (SEQ ID NO: 2).

40. (Withdrawn): A method for selecting from a population of mammals that have cancer, a mammal that is amenable to treatment with a PAK activity modulator, comprising:

(i) determining a first level of phosphorylated PAK in a tumorogenic biopsy obtained from a tissue from a candidate mammal;

(ii) determining a second level of phosphorylated PAK in a non-tumorogenic biopsy of the same tissue from the candidate mammal of (i); and

(iii) comparing the first and second levels of phosphorylated PAK,

wherein a level of PAK phosphorylation that is greater in the first level than the second level indicates that the candidate mammal is a mammal that is amenable to treatment with a PAK activity modulator.

41. (Withdrawn): The method of claim 26, wherein the level of phosphorylated PAK is measured using a phosphospecific antibody specific for PAK.

42. (Withdrawn): The method of claim 41, wherein the phosphospecific antibody is raised against the peptide, RRKSLVGTPYWMAPE (residues 2-16 of SEQ ID NO: 1), which comprises a phosphorylated serine.

43. (Withdrawn): The method of claim 34, wherein the level of phosphorylated PAK is measured using a phosphospecific antibody specific for PAK.

44. (Withdrawn): The method of claim 43, wherein the phosphospecific antibody is raised against the peptide, RRKSLVGTPYWMAPE (residues 2-16 of SEQ ID NO: 1), which comprises a phosphorylated serine.

45. (Withdrawn): The method of claim 38, wherein the level of phosphorylated PAK is measured using a phosphospecific antibody specific for PAK.

46. (Withdrawn): The method of claim 45, wherein the phosphospecific antibody is raised against the peptide, RRKSLVGTPYWMAPE (residues 2-16 of SEQ ID NO: 1), which comprises a phosphorylated serine.

47. (Withdrawn) A method for determining the level of phosphorylated PAK in a mammalian biopsy, comprising:

(i) exposing the biopsy to a phosphospecific antibody specific for PAK; and

(ii) detecting the antibody,

wherein the level of antibody detected correlates with the level of phosphorylated PAK in the mammalian biopsy.

48. (Withdrawn): The method of claim 47, wherein the phosphospecific antibody is raised against the peptide, RRKSLVGTPYWMAPE (residues 2-16 of SEQ ID NO: 1), which comprises a phosphorylated serine.

49. (Withdrawn): A phosphospecific antibody raised against serine 474 of a PAK4 peptide.

50. (Withdrawn): The phosphospecific antibody of claim 49, wherein the PAK4 peptide comprises the amino acid sequence, KEVPRRKSLVGTPYWMAPE (SEQ ID NO: 5), which comprises a phosphorylated serine.

51. (Withdrawn): A method of identifying a compound that modulates PAK phosphorylation, comprising:

(i) adding a test compound to a preparation of PAK4 protein;

(ii) measuring the level of phosphorylation of said PAK4 using a phosphospecific antibody directed against PAK4; and

(iii) comparing the level of the treated PAK4 preparation to the phosphorylation level of an untreated PAK4 preparation,

wherein a level of phosphorylation in the treated preparation that differs from the phosphorylation level of the untreated preparation indicates that the test compound is a compound that modulates PAK phosphorylation.

52. (Withdrawn): The method of claim 51, wherein the PAK4 preparation comprises PAK4 isolated from a biopsy from a mammal.

53. (Withdrawn): The method of claim 51, wherein the PAK4 preparation comprises recombinantly-produced PAK4 protein.

54. (Withdrawn): A method of identifying a compound that modulates PAK phosphorylation, comprising:

(i) exposing a culture of cells to a test compound;

(ii) measuring the level of phosphorylation of PAK using a phosphospecific antibody directed against PAK4; and

(iii) comparing that level to the level of PAK phosphorylation in untreated cells,

wherein a level of phosphorylation that is lower or higher than the untreated cells indicates that the test compound is a compound that modulates PAK phosphorylation.

55. (Withdrawn): The method of claim 54, wherein the phosphospecific antibody is raised against the peptide, RRKSLVGTPYWMAPE (residues 2-16 of SEQ ID NO: 1), which comprises a phosphorylated serine.

56. (Withdrawn): A method for selecting a mammal amenable to treatment with a PAK activity modulator, comprising determining whether PAK4 protein is overexpressed in a biopsy obtained from the mammal, wherein a level of PAK4 protein that is greater than the normal level of PAK4 expression in an equivalent biopsy sample indicates that the mammal is amenable to treatment with a PAK activity modulator.

57. (Withdrawn): The method of claim 56, wherein the level of PAK4 protein is determined using a PAK4-specific antibody.

58. (Withdrawn): The method of claim 57, wherein the PAK4-specific antibody is raised against the peptide sequence, ATTARGGPGKAGSRGRFAGHSEA (SEQ ID NO: 2).

59. (Withdrawn): A method for selecting a mammal amenable to treatment with a PAK activity modulator, comprising:

(i) measuring the level of PAK4 protein in a biopsy obtained from a first tissue of an organ of a candidate mammal;

(ii) measuring the level of PAK4 protein in a biopsy obtained from a second tissue of the organ of a candidate mammal; and

(iii) comparing the two levels,

wherein a difference between the levels of PAK4 protein in the two biopsies indicates that the candidate mammal is amenable to treatment with a PAK activity modulator.

60. (Withdrawn): The method of claim 59, wherein the level of PAK4 protein is determined using a PAK4-specific antibody.

61. (Withdrawn): The method of claim 60 wherein the PAK4-specific antibody is raised against the peptide sequence, ATTARGGPGKAGSRGRFAGHSEA (SEQ ID NO: 2).

62. (Withdrawn): A method for selecting a mammal amenable to treatment with a PAK activity modulator, comprising:

(i) determining whether PAK4 mRNA is overexpressed in a biopsy from a tissue obtained from a candidate mammal,

wherein a level of PAK4 mRNA that is greater than the normal level of PAK4 mRNA expression in a biopsy obtained from an equivalent tissue from a known healthy mammal indicates that the candidate mammal is amenable to treatment with a PAK activity modulator.